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ENHANCING POULTRY PRODUCTION FOR WEALTH CREATION IN RURAL AREAS OF EBONYI STATE, NIGERIA

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Abstract

The study investigated strategies for improving poultry production for wealth creation in rural areas of Ebonyi State, Nigeria. The study focused on poultry house construction, feed, feeding, disease prevention and marketing of poultry products. A descriptive survey research design was adopted and involved all 43 senior agricultural science teachers, 53 registered poultry farmers and 8 extension officers in Ohaukwu Local Government Area of Ebonyi State, making a total of 104 respondents for the study. Thirty-five (35) item statements were developed as questionnaires by the researcher for the study and used in generating data. Data collected was analysed, using mean and standard deviation in answering the research questions, while ANOVA at a 0.05% probability level was deployed to test the null hypotheses. The study found that all the 35 item statements investigated were viable strategies for improving poultry production for wealth creation in rural areas of Ebonyi State. It was concluded that there was no significant difference among the mean responses of the three sets of respondents regarding the strategies investigated. It was recommended that all the strategies identified in this study should be incorporated into a handbook for teaching poultry production in schools and colleges by curriculum planners and extension officers.

Keywords: Poultry production, wealth creation, rural areas, enhancing strategies.

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Introduction

The livestock sub-sector is an essential component of Nigeria's agricultural development, contributing a significant percentage of all agricultural activities in Nigeria. The sector serves as an economic enterprise that aids in human empowerment, food security, poverty reduction and employment and is a primary source of animal protein. Nationally, this sub-sector has contributed over 7% of the gross domestic product (GDP) between 2000 and 2008 (Food and Agricultural Organization, 2010). This sector comprises cattle, sheep, goat, pig, snail, rabbit, fish and poultry production.

Poultry production is the farming of domestic birds like chickens and turkeys as well as ducks to produce meat, eggs, and other products. This can range from small-scale backyard operations to large, industrial facilities that manage everything from breeding to processing. The poultry industry, as a cornerstone for global food production and an essential protein source through chicken meat and eggs for millions of people, is a viable source of employment to rural dwellers. Poultry production is an integral part of livestock, focusing on quantitative and qualitative growth and improvement in poultry products for food, economic uses and raw materials. Poultry production involves several stages which need improvement, including breeding, hatching, rearing, disease prevention, processing and marketing of products (Stile, 2017). The poultry sector provides vital support to other sectors like hospitality and agriculture, feathers for the mattress industry, organic manure for farmers, and ensuring a sustainable meat supply for the urban population (Wahyono and Utami, 2018). These roles make the poultry industry a common and most accessible enterprise in rural areas of Ebonyi State. For easy wealth creation, it can be established with few capital resources within the reach of rural dwellers.

In view of Idenyi (2018), a person whose 80% of his income is spent on food alone is living below the poverty index, and this is exactly the situation in rural areas of Ebonyi State. However, a rural area is conceived as an area whose 90% of its inhabitants (population) get their income from the agricultural sector (Ntude, 2016). Hence, rural areas are traditionally seen as farming settlements (agrarian communities) with villages surrounded by farms and forest where the majority of the inhabitants are engaged in farming as their main occupation or means of livelihood. These categories of people find it extremely difficult to create wealth to ease their living. Therefore, poultry enterprises become more accessible options, considering their synergy with other sub-sectors of agriculture, like crop production enterprises, in the provision of organic manure sources.

Despite these vital roles of the poultry industry in the agricultural economy, its efficiency and growth are continuously being challenged. These challenges arise from exorbitant prices of raw materials for feed formulation, knowing fully well that feeds are key to the success of the poultry industry. More so, in view of the Food and Agricultural Organization (2018), many

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poultry industries in rural areas are substandard in various forms and are being managed by incompetent farm operators, coupled with poor inclination to the adoption of improved innovative strategies. Enhancing strategies for improved poultry productivity in areas such as feed formulation, housing construction, disease prevention and treatment, equipment management and product marketing are vital aspects of the enterprise to be improved upon for increased productivity of the industry for sustainable wealth creation in rural areas.

More so, the services of extension officers, senior agricultural science teachers and certified animal scientists must be sought. This is because these categories of manpower have been trained and re-trained and are capable of generating manipulative skills that would lead to the success of the poultry industry. Onu and Ohagwu (2010) maintained that training programme development is essential for production skill acquisition and human capacity building in agriculture. This is obvious in the sense that farmers and operators of farms must be technically competent for success to be achieved.

Today in Nigeria the principle motive for embarking on poultry farming is the increase in production of animal protein through poultry meat and eggs. This is because the increase in the demand for these products has created a noticeable challenge for poultry farmers, resulting in ever-rising costs and competition for the poultry products beyond the reach of less privileged members of the society endemic in rural areas, mostly as a result of the increase in raw materials for feed production and other additives being imported at the expense of our little capital resources. More so, poor access to improved technology and management practices has equally limited the productivity of the industry; hence, farmers could not meet up with the growing demand for eggs, meat and birds. Therefore, rural farmers are constrained by this scenario and are exposed to undue challenges of malnutrition, which is evidence of a high poverty index. Hence, improvement of poultry productivity demands improved capacities of farmers in various competency areas in the enterprise for sustainable wealth creation.

The general purpose is to examine the strategies for enhancing poultry production for wealth creation in the rural area of Ebonyi State. Specifically, the study sought to:

1. Examine modern equipment used in constructing poultry houses to improve poultry production.
2. Determine the appropriate poultry feed that could improve poultry production
3. Explore the appropriate diseases prevention and control strategies to improve poultry production
4. Identify appropriate and profitable markets for improving poultry production.

Research questions

The following research questions guided the study.

1. What are the modern equipment used in constructing poultry houses to improve poultry production?
2. What are the appropriate poultry feeds that could improve poultry production?
3. What are the appropriate disease prevention and control strategies to improve poultry production?
4. What are appropriate and profitable markets for improving poultry production?

Hypotheses

Four null hypotheses tested at 0.05% probability level guided the study are the following:

1. **Ho_1:** There is no significant difference in the mean responses of poultry farmers, senior agricultural science teachers and extension officers on the modern equipment used in constructing poultry houses.
2. **Ho_2:** There is no significant difference in the mean ratings of poultry farmers, senior agricultural science teachers and extension officers on the appropriate feed that could improve poultry production.
3. **Ho_3:** There is no significant difference in the mean ratings of poultry farmers, senior agricultural science teachers and extension officers on the appropriate disease prevention and control strategies to improve poultry production.
4. **Ho_4:** There is no significant difference in the mean responses of poultry farmers, senior agricultural science teachers and extension officers on the appropriate and profitable markets for improving poultry production.

Methodology

The study adopted a descriptive survey research design. Survey research design is a research approach specifically designed to systematically collect data about a group of individuals with similar characteristics through questionnaires, interviews, mail, telephone and the internet (Chuone, 2020). This design was considered suitable because the opinion of the respondents was sought using a questionnaire. The study was carried out in Ohaukwu L.G.A. of Ebonyi State, predominantly a rural area. The population of the study consisted of 43 senior agricultural science teachers, 53 registered poultry farmers and 8 extension officers, making a total of 104 respondents for the study. This number of respondents was considered small and

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manageable; therefore, there was no need for sampling. Hence, the entire population was involved in the study. The researcher developed a 36-item statement used in collecting data for the study. The instrument was subjected to face validation by three experts: two from the Vocational and Technical Education Department and one from the Measurement and Evaluation Unit of Alex-Ekwueme Federal University Ndufu-Alike Ikwo, Ebonyi State. The suggestions and corrections offered were religiously adhered to in producing the final copy of the questionnaire. The reliability of the instrument was determined using the Cronbach alpha method, and a coefficient of 0.88 was obtained, which is high enough to permit the conclusion that the instrument was reliable. A total of 104 copies of the questionnaire were administered to the respondents personally and retrieved by the researcher on the spot, thereby achieving a 100% return rate and being used for the analysis. The mean with standard deviation was used in answering the research questions, whereas the null hypothesis was tested using ANOVA at 0.05% probability level at appropriate degree of freedom (df). Four-point rating scales of Strongly Agree (SA), Agree (A), Strongly Disagree (SD) and Disagree (D) with corresponding values of 4, 3, 2 and 1 were used to rate the responses. In reaching a decision regarding the degree of response, any item with a mean response of 2.50 and above was considered 'agree', while any mean response below 2.50 was considered 'disagree'. Whereas the null hypotheses would be rejected if the calculated value of the F-ratio were either equal to or greater than the value of the F-table (critical value); otherwise, do not reject.

Results

The results of this study were present in tables according to the research questions and hypotheses.

Table 1

Modern Equipment Used in Constructing Poultry House to Improve Poultry Production

	Item statement X_1	**Poultry farmers**		**Senior Agric sci. Teachers**		**Extension officers**		**Overall**		**Dec.**
		SD_1	X_2	SD_2	X_3	SD_3	X_4	SD_4		
1	Use of automated feeders and watering system	3.42	0.99	3.45	0.81	3.32	0.84	3.40	0.88	Agree
2	Use of climate control system technology	3.45	0.81	3.50	0.66	3.32	0.76	3.42	0.74	Agree

3	Use of modern housing materials like insulated panels and moisture-resistant roofing	3.40	0.77	3.02	0.68	2.83	0.41	3.08	0.62	Agree
4	Use of biosecurity equipment such as footbaths and air filtration	2.89	0.84	3.06	0.64	3.02	0.23	2.99	0.74	agree
5	Use of automated egg collection system	3.05	0.78	3.10	0.82	3.16	0.80	3.10	0.80	Agree
6	Use of modern nesting system	3.20	0.70	3.12	0.63	3.15	0.58	3.16	0.64	Agree
7	Use of efficient waste management system	2.86	0.91	2.93	0.65	3.01	0.48	2.93	0.68	Agree
8	Use of surveillance and monitoring system	3.05	0.86	3.13	0.81	3.21	0.78	3.13	0.82	Agree
cluster total		3.17	0.83	3.16	0.71	3.13	0.67	3.15	0.74	Agree

Source: Igwe's Field survey, 2026

The results in table 1 shows that all the items had their mean scores above the bench-mark of 2.50, which means that they are all viable equipment to be utilized in constructing poultry house for wealth creation in a rural area. Therefore, the modern equipment identified for poultry house construction is ideal for modern poultry rearing for improved efficiency in poultry inducting.

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Table 2: Appropriate feeds used to improve poultry production.

Item statement X_1		Poultry farmers		Senior Agric Science Teachers		Extension officers		Overall		Decision
		SD_1	X_2	SD_2	X_3	SD_3	X_4	SD_4		
1	Use of balanced commercial poultry feeds	3.25	0.79	3.40	0.73	3.16	0.69	3.27	0.74	Agree
2	Incorporating natural feeds with additives	3.05	0.70	3.15	0.81	3.32	0.77	3.17	0.76	Agree
3	Supplementing poultry diet with vitamins and minerals	3.26	0.84	3.23	0.76	3.30	0.80	3.26	0.80	Agree
4	Use of locally sourced feed ingredients	3.37	0.77	3.18	0.69	3.10	0.73	3.22	0.73	Agree
5	Use of medicated feeds	3.10	0.86	3.09	0.73	2.95	0.72	3.05	0.77	Agree
6	Use organic feeds	3.18	0.71	3.40	0.63	3.23	0.78	3.27	0.71	Agree
7	Use high-protein feeds	3.23	0.83	3.40	0.75	2.98	0.85	3.20	0.81	Agree
8	Use of animal by-products	3.22	0.69	2.95	0.72	3.12	0.74	3.10	0.72	Agree
9	Feed formulation based on the specific age and type of poultry	3.10	0.72	2.99	0.67	3.05	0.76	3.05	0.72	Agree
cluster total		3.20	0.76	3.20	0.72	3.13	0.76	3.18	0.75	Agree

Source; Igwe's Field survey, 2026

The Table 2 reviewed that all the item statements investigated regarding appropriate feeds to be used in increasing growth and yield performance were accepted as being appropriate for modern poultry enterprise since their mean scores were all above the criterion mean of 2.50 together with the overall grand mean (x).

Table 3: ***Appropriate Disease Prevention and Control Strategies For Improved Poultry Production.***

Item statement X_1		Item statement		Poultry farmers		Senior Agric Science Teachers		Extension officers		Overall
		SD_1	X_2	SD_2	X_3	SD_3	X_4	SD_4		
1	Controlling access to poultry house	3.15	0.74	3.43	0.78	3.30	0.73	3.29	0.75	Agree
2	Adoption of appropriate vaccination program	3.03	0.71	3.45	0.83	3.29	0.82	3.29	0.79	Agree
3	Isolation of sick birds promptly	2.75	0.83	3.35	0.80	3.24	0.81	3.11	0.81	
4	Proper disposal dead birds	3.20	0.73	2.80	0.84	2.86	0.68	2.95	0.75	
5	Strict sanitation protocols	3.41	0.84	3.38	0.80	2.75	0.75	3.18	0.80	Agree
6	Training poultry farmers in disease management practices.	2.90	0.82	3.25	0.69 0.78	2.65	0.74	2.93	0.75	Agree
7	Ensuring good sanitation	2.65	0.86	3.15	0.65	3.41	0.80	3.07	0.77	Agree
8	Maintain a disease-free house.	3.31	0.87	3.26	0.75	2.90	0.77	3.16	0.74	Agree
Cluster Total		3.06	0.80	3.26	0.87	3.05	0.76	3.12	0.81	Agree

Source: Igwe's Field survey, 2026

The results as presented in table 3 showed that the eight-item statement investigation regarding appropriate disease prevention and control strategies for improving poultry production were all viable for ensuring a disease-free farm for increased productivity of the enterprise for wealth creation in rural areas. This was shown from mean ratings of the three sets of respondents which were all above the cut-off point of 2.50. Therefore, they were all agreed as being appropriate for prevention and control of poultry disease.

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Table 4

Appropriate and Profitable Markets for Improving

Item statement		Item statement		Poultry farmers		Senior Agric Science Teachers		Extension officers		Overall
		X_1	SD_1	X_2	SD_2	X_3	SD_3	X_4	SD_4	
1	Establishing strong relationship with event organizers	3.31	0.74	3.51	0.70	3.21	0.75	3.34	0.73	Agree
2	Collaborating with public office holders	3.13	0.69	2.86	0.17	3.07	0.82	3.02	0.74	Agree
3	Building connection with established farmers	2.59	0.65	2.58	0.79	3.01	0.74	2.73	0.73	Agree
4	Partnering with restaurant proprietors	2.85	0.80	3.22	0.87	3.09	0.77	3.05	0.81	Agree
5	Locating viable open market	2.94	0.73	3.28	0.84	3.41	0.78	3.21	0.78	Agree
6	Liaising with consumers' cooperatives	3.05	0.71	3.29	0.87	3.26	0.82	3.20	0.80	Agree
7	Utilizing social media and online platforms	3.16	0.67	3.42	0.73	3.33	0.73	3.30	0.71	Agree
8	Liaising with supermarkets and grocery stores	3.23	0.83	2.16	0.63	3.29	0.75	3.06	0.70	Agree
9	Liaising with specialty stores (organic market)	2.96	0.71	3.16	0.86	3.45	0.88	3.19	0.82	Agree
10	Arrange and export products	3.15	0.78	3.32	0.68	2.96	0.74	3.14	0.73	Agree
11	Conduct direct consumer delivery services	2.97	0.64	3.91	0.78	3.07	0.83	3.15	0.74	Agree
	Cluster total	3.03	0.72	2.92	0.77	3.20	0.78	3.38	0.69	Agree

Table 4 presented appropriate and profitable market outlets for marketing poultry products. The analysis showed that the mean scores of the three sets of the respondents, including the overall grand mean, were above the criterion mean of 2.50. Therefore, all these item statements investigated are regarded as agreed, since the mean ratings were all above 2.50, which is the benchmark of acceptance.

Test of null hypotheses

Table 5

ANOVA On The Responses of Poultry Farmers, senior agricultural science teachers and Extension Officers on Modern Equipment for constructing poultry houses

Source of variation	Df	Sum square (SS)	Mean square (MS)	F-cal	Critical value of F	Significance	Decision
Between groups	2	0.0287	0.01				Do not reject
Within groups	101	134.06	1.33				
				0.01	1.98	NS	
Total	103						

The result of the ANOVA analysis on table 5 showed that the calculated F-ratio (0.1) is less than the critical value (1.98). This indicates that the null hypothesis was not rejected. Therefore, there is no significant difference among the mean ratings of the respondents on the modern equipment for constructing poultry houses for improved efficiency in the industry for wealth creation.

Table 6

Anova On the Responses of Poultry Farmers, Agric. Science Teachers and Extension Officers On Appropriate Feeds That Could Improve Poultry Production

Source of variation	Df	Sum square (SS)	Mean square (MS)	F-cal	Critical value of F	Significance	Decision
Between groups	2	0.02132	0.11				Do not reject
Within groups	101	138.44	1.37				
				0.08	1.98	NS	
Total	103						

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The result in table 6 showed that the calculated f-ratio (0.08) is less than the table value of 1.98 at 0.05 level of significance; hence, the null hypothesis was not rejected. Therefore, there is no significant difference among the mean scores of the three categories of respondent on appropriate feeds that could improve poultry production for wealth creation in the rural area of Ebonyi State.

Table 7

ANOVA on the Responses of Poultry Farmers, Senior Agric. Science Teachers and Extension Officers on Appropriate Disease Prevention and Control Strategies and Improve Poultry Production

Source of variation	**Df**	**Sum square (SS)**	**Mean square (MS)**	**F-cal**	**Critical value of F**	**Significance**	**Decision**
Between groups	2	0.02132	0.11				Do not reject
Within groups	101	138.44	1.37				
				0.08	1.98	NS	
Total	103						

The result in table 7 showed that the calculated f-ratio (0.43) is less than the table ratio of 1.98; this indicated that the null hypothesis was not rejected. Therefore, there is every reason from the result to conclude that there is no significant difference between the mean scores of the poultry farmers, senior agricultural science teachers and extension officers on the appropriate disease prevention and control strategies for improving poultry production for wealth creation in rural areas.

Table 8

ANOVA on the Responses of Poultry Farmers, Senior Agric. Science Teachers And Extension Officers On Appropriate And Profitable Markets For Improving Poultry Production

Source of variation	Df	Sum square (SS)	Mean square (MS)	F-cal	Critical value of F	Significance	Decision
Between groups	2	281.82	140.91				Do not reject
Within groups	101	1083.47	10.73				
				13.13	1.98	NS	
Total	103						

The result in Table 8 showed that the calculated F-ratio (13.13) with regard to the opinion of the three sets of respondents on appropriate and profitable markets for improving poultry production is greater than the critical F-value of 1.98 at 0.05 level of significance; hence, the null hypothesis of no difference was rejected and the alternative hypothesis was upheld, although the observed difference may be mere chance, which can result from sampling errors.

Discussion of findings

The findings of the study are discussed as follows:

One of the findings was that automated feeders and watering, climate control systems, biosecurity, equipment, automated egg collection systems, surveillance, and other technologies were appropriate enough for improving poultry house construction. This finding is consistent with Olaniyi and Ademola (2020), who reported that one of the most striking barriers to the poultry industry was the utilisation of unimproved equipment in constructing poultry houses. They further stated that such materials usually predispose birds to undue challenges. The authors further suggested the use of modern technologies to avert the noticed inadequacy and promote poultry production.

The study reviewed that appropriate diet resulting from balanced feed, natural feeds with additives, medicated feeds, high protein feed, and feeds formulated based on age and type of birds, among other feed technologies, are the secret of successful poultry farmers. This finding is in line with the one reported by Adoeoye and Balrguu (2018) that supplementary feed, use of viable local feed, and incorporation of natural feed with additives are essential in maximising productivity. They further noted that these combinations directly affect growth rate, egg production and overall bird health. They equally suggest prioritising balanced commercial feeds tailored to the specific age and type of bird in meeting their nutritional needs.

The work also reviewed that the eight diseases' prevention and control measures identified were viable strategies for promoting poultry health and performance. These findings were in conformity with those of Eze and Odo (2019) who stated that effective adherence to biosecurity measures, regular vaccination and regular retraining programmes for poultry workers are significant in reducing disease outbreaks and enhancing poultry health for increased production. They further stressed that establishing and enforcing efficient biosecurity protocols minimise the risk of the diseases' introduction into poultry farms.

The study also showed that appropriate and profitable markets are vital indices for improvement in the poultry industry, as the respondent clearly indicated in support of the identified market outlets. This finding is consistent with the findings of Okonye and Ifeanyi (2021),

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who found that farmers can enhance profitability by gaining access to various market outlets, such as those identified in this study. They further suggested that agricultural organization encourage and promote partnerships between farmers and local businesses, including restaurants and cooperatives, to strengthen local supply chains. They also advocate for training programmes on marketing strategies, social media utilisation and consumer engagement aimed at promoting their product through the extension education services.

The non-significant difference in the hypotheses could be attributed to the fact that agricultural science teachers, extension workers and farmers are all involved in designing strategies for promoting agribusiness enterprises; therefore, this might have been the basis of the uniformity in their opinions regarding the four major improvement areas of emphasis in the study.

Conclusion

The research findings indicated that integrating modern equipment in constructing poultry houses, adopting appropriate feeding practices, implementing stringent disease prevention and control protocols and strategic market access can significantly improve the productivity and financial viability of poultry farmers. In an attempt to achieve holistic improvement in the poultry industry, the identified strategies should be incorporated in a handbook for teaching poultry production in schools and training centres/institutes for purposes of capacity building of poultry workers in general. More so, the services of extension workers will be extensively deployed since they are competent in designing and delivering skills to farmers in addition to agricultural science teachers. These technologies invoked can only be utilised by rural farmers if they are appropriately delivered through the support of government and guided by extension workers in the rural area.

Recommendations

Based on the findings of this study, the following recommendations were proffered:

1. Provision of training and retraining programmes for capacity building of the rural farmers should be the target of the government.
2. Farmers should strive to incorporate the identified technologies in their poultry businesses.
3. Poultry farmers should be encouraged to collaborate with one another to form producer groups and support systems for promoting poultry enterprises.

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